IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Konrad Roeingh, et al.

Serial No: 10/501,708

Filed: July 16, 2004

For: SEALING DEVICE COMPRISING A TWO-PIECE ANNULAR BODY

Examiner: Vishal A. Patel

Art Unit: 3673

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

AMENDED BRIEF ON APPEAL

S I R:

This appeal is taken from the Final Action mailed September 28, 2006.

Real Party in Interest

The real party in interest in the above-identified application is:

SMS Demag AG
Eduard-Schloemann-Strasse 4
DE-40237 Düsseldorf
Germany

Related Appeals and Interferences

There are no related appeals or interferences of which Applicants are aware regarding the above-identified application.

Status of Claims

Claims 1-6 and 8 are pending in the application and are subject to the present appeal. Claim 7 has been canceled. Claims 1-6 and 8 stand rejected under 35 U.S.C. 103(a) over U.S. Patent No. 4,099,731 to Salter in view of U.S. Patent No. 4,022,480 to

Salter Jr. (hereinafter Salter '480).

Status of Amendments After Final Rejection

An amendment after final rejection was filed on March 6, 2007 and was entered upon filing of the present appeal.

Summary of the Claimed Subject Matter

The claimed invention will now be summarized with reference to the drawings being made by way of reference numerals.

Independent Claim 1

The claimed invention recites a sealing device 16 for a rotatably supported roll 15 (See Page 5, lines 10-12 and Fig. 2 of the specification). The sealing device 16 has at least one annular body 17, 18, which is supported on a roll neck 2 and encompassing the roll neck (see page 5, line 13, page 6, lines 19-20, and Fig. 2). The annular body is provided with at least one outwardly extending lip 21; 22 that rests against and seals a stationary part 7 during rotation of the roll (see page 6, lines

1-17 and Fig. 2). The annular body has at least two parts 17; 18 (see page 5, lines 11-12 and Fig. 2). A first part 17 rests against a part 2 of the roll 15 (see page 5, lines 13-15 and Fig. 2), and a second part 18 comprises the at least one outwardly extending lip 21; 22 (see page 6, lines 4-5 and Fig. 2). The second part 18 is held in a pocket of the first part 17 (see page 6, lines 18-19 and Fig. 2). The at least one lip is spring-supported 23, 24 (see page 6, lines 12-14 and Fig. 2).

Independent Claim 8

The claimed invention also recites a rolling device with at least one roll 15 rotatably supported in a stand and with at least one sealing device that seals the roll against a stationary area 7 of the rolling device (See Page 5, lines 10-12 and Fig. 2 of the specification). The sealing device 16 comprises at least one annular body supported on a roll neck 2 and encompassing said roll neck(see page 5, line 13, page 6, lines 19-20, and Fig. 2). The annular body is provided with at least one outwardly extending lip 21; 22 that rests against and seals a stationary part 7 during rotation of the roll (see page 6, lines 1-17 and Fig. 2). The annular body comprises at least two parts 17; 18

(see page 5, lines 11-12 and Fig. 2). A first part 17 rests against a part 2 of the roll 15 (see page 5, lines 13-15 and Fig. 2), and a second part 18 comprises the at least one outwardly extending lip 21; 22 (see page 6, lines 4-5 and Fig. 2). The second part 18 is held in a pocket of the first part 17 (see page 6, lines 18-19 and Fig. 2). The at least one lip is spring-supported 23, 24 (see page 6, lines 12-14 and Fig. 2).

Grounds of Rejection to be Reviewed on Appeal

The following ground is presented for review:

Whether claims 1-6 and 8 are unpatentable under 35 U.S.C. 103(a) over Salter in view of Salter '480.

Argument

The Rejection of Claims 1-6 and 8 under 35 U.S.C. 103(a):

In rejecting claims 1-6 and 8, the Examiner stated the

following in the final rejection:

"Salter discloses rolling device with at least one roll (14) rotatably supported in a stand and with at least one sealing device that seals the roll against a stationary area (stationary area having surfaces 50 and 52) of the rolling device. The seal device comprising at least one annular body (seal 38) supported on a roll neck (neck 16) and encompasses the roll neck (the seal encompasses the roll neck 16). The annular body being provided with at least one outwardly extending lip (lips 104b and 106b) that rests against and seals a stationary part (part having surfaces 50 and 52) during rotation of the roll. The annular body comprises at least two parts (38a and 38b). The first part rests against a part of the roll (part of 38a that rests against the roll 14 having the roll neck 16) and the second part comprises the at least one outwardly extending lip and the second part is held in a pocket of the first part (the second part is held in a pocket of the first part). The second part encompasses at least one lip directed axially in the direction of the barrel of the roll and one lip directed axially in the opposite direction (the lips 104b and 106b are in opposite direction). The first part and the second part have different moduli of elasticity (since the material of the two parts are different it would have different moduli, column 5, lines 50-54). The first part and the second part have different surface hardness values (this is also true because they are formed of two different material). The first and the second part consist of different material (column 5, lines 50-54). The lip or lips consist of an elastic rubber material. The limitations the second part is in a recess of the first part (as seen in figure 1, the second part 38b is in a recess of the first part 38a).

Salter discloses the invention substantially as claimed above but fails to disclose that the lip or lips are spring supported. Salter' 480 discloses a roll neck having a sealing device that has lips (lips of figure 1 which do not have spring support) and lips (lips showed in figure 4 that have spring supports 110). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the lips of Salter to have spring supports as taught by Salter '480, to provide additional means for urging (column 5, line 64-column 6, line 5 of Slater '480)."

Turning now to the references and particularly to the patent to Salter, Jr., it can be seen that this patent discloses a seal. Salter, jr. does not disclose a pocket in the seal element 38a, into which the sealing element 38b fits. For this reason Salter, Jr. needs a fastening arrangement in order to hold the sealing element 38b on the sealing element 38a. Salter, Jr. further does not disclose a construction having an annular body provided with at least one outwardly extending lip that rests against and seals a stationary part during rotation of the roll, wherein the annular body comprises at least two parts, wherein a first part rests against a part of the roll, and a second part comprises the at least one outwardly extending lip, wherein the at least one lip is spring-supported, as in the presently claimed invention.

The Examiner states that Salter teaches that the second part of the seal is held in a pocket of the first part. The Examiner also states that Salter teaches that the first part of the seal has a cavity that accepts the second part of the seal. Applicant respectfully submits that the Examiner is incorrect in his reading of the reference. The inner sealing element 38a of Salter, which corresponds to the first part 17 of the sealing arrangement of the present invention, has, according to col. 4, beginning at line 1,

an angular end face 80 that transits into a cylindrical outer surface 82 that is coaxial with the axis of the seal. The second segment 38b is specifically laid **on** this cylindrical outer surface 82. It is **not in** the first part. It is not possible to lay set something in a cylindrical outer surface since there is no depression or pocket.

Salter further has a surface 84 that extends perpendicularly from the cylindrical outer surface. This perpendicular surface 84 only forms with the cylindrical upper surface 82 an L-shape. There is no formation of a pocket. At best Salter provides an L-shaped surface **on** which the second element can be laid. The perpendicular surface 84 prevents sliding of the second element 38b to the right in the drawing. The second element can be slid to the left. So that no sliding is possible the second element 38b as a complex L-shaped metal band 102 that is vulcanized or welded to the second element (see col. 4, lines 23 and 35-37) and accepts a screw 126.

The presently claimed invention, on the other hand, has a sealing element 17 provided with a pocket **in** which the second element 18 is inserted. The pocket is best understood when viewed in cross-section. The pocket has a surrounding groove that is closed on two sides so that the sealing element 18 cannot fall

out. There is no need for a screw or a metal strip attached to the second part as in Salter.

Only a pocket can hold the second element 18 securely so that it does not move. The present invention thus provides secure mounting with only two parts which are simple to produce.

According to Salter the second element 38b has a complex metal part that is vulcanized on, and a screw is necessary for final assembly. This is a much more complex and costly construction than in the presently claimed invention.

The patent to Salter '480 discloses a neck seal. The Examiner combined Salter '480 with Salter in determining that claims 1-6 and 8 would be unpatentable over such a combination. Applicant respectfully submits that neither of these references, nor their combination, teach the presently claimed invention. The pocket in Salter '480 is not in a further sealing element, but instead is in the bearing housing. The pocket is formed by a portion of the bearing housing 16 and two spring rings 14, 15. Thus, a large number of parts are needed, together with their corresponding complex assembly, to form the pocket for the sealing element 1. The combination does not teach a sealing element that has a pocket

in which a further sealing element is insertable, whereby further components are not necessary for connecting the sealing elements together or inserting one element into the pocket of the other. Furthermore, the combination does not teach spring reinforced sealing lips.

The Examiner also inferentially cites Pringle. Pringle does not teach a first sealing element having a pocket into which a second sealing element is inserted. The pocket of Pringle is not in a sealing element, but instead in a support housing. Furthermore, the seal of Pringle must be clamped to hold it in place.

Conclusion

Accordingly, in view of the above considerations, it is Applicant's position that the Examiner's rejection of claims 1-6 and 8 under 35 U.S.C. 103(a) is in error and should be reversed.

The amount of $500.00 to cover the fee for filing an appeal brief is being charged as per attached form PTO-2038. Any additional fees or charges required at this time in connection with this application should be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

By 

Klaus P. Stoffel
Reg. No. 31,668
For: Friedrich Kueffner
Reg. No. 29,482
317 Madison Avenue, Suite 910
New York, New York 10017
(212) 986-3114

Dated: October 5, 2007

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450 Alexandria, VA 22313-1450, on October 5, 2007.

By: 
Klaus P. Stoffel

Date: October 5, 2007

Claims Appendix

1. Sealing device (16) for a rotatably supported roll (15), the sealing device comprising at least one annular body, which is supported on a roll neck (2) and encompassing said roll neck, the annular body being provided with at least one outwardly extending lip (21; 22) that rests against and seals a stationary part (7) during rotation of the roll, wherein the annular body comprises at least two parts (17; 18), wherein a first part (17) rests against a part (2) of the roll (15), and a second part (18) comprises the at least one outwardly extending lip (21; 22), and wherein the second part (18) is held in a pocket of the first part (17), wherein the at least one lip is spring-supported.

2. Sealing device in accordance with Claim 1, wherein the first part (17) and the second part (18) have different moduli of elasticity.

3. Sealing device in accordance with Claim 1, wherein the first part (17) and the second part (18) have different surface hardness values.

4. Sealing device in accordance with Claim 1, wherein the first part (17) and the second part (18) consist of different materials.

5. Sealing device in accordance with Claim 1, wherein the second part (18) comprises at least one lip (21) directed axially in the direction of the barrel of the roll (15) and one lip (22) directed axially in the opposite direction.

6. Sealing device in accordance with Claim 5, wherein the lip or lips (21; 22) consist of an elastic rubber material.

8. Rolling device with at least one roll (15) rotatably supported in a stand and with at least one sealing device that seals the roll against a stationary area (7) of the rolling device, wherein the sealing device (16) comprises at least one annular body supported on a roll neck (2) and encompassing said roll neck, the annular body being provided with at least one outwardly extending lip (21; 22) that rests against and seals a stationary part (7) during rotation of the roll, wherein the annular body comprises at least two parts (17; 18), wherein a first part (17) rests against a part (2) of the roll (15), and a second part (18) comprises the at least one outwardly extending

lip (21; 22), and wherein the second part (18) is held in a pocket of the first part (17)), wherein the at least one lip is spring-supported.

Evidence Appendix

N.A.

Related Proceedings Appendix

There are no related proceedings.